

LISTING OF CLAIMS:

1. (currently amended) An apparatus for use as a sensor comprising
a plurality of piezoelectric elements, each of said piezoelectric elements having an output,
a rectification block on each said output of said piezoelectric elements,
a capacitive element connected to each of said rectification blocks to accumulate charge
from said rectification block,
a signal phase delay element provided between said rectification block and said
capacitive element, and
a sensor output connected to said capacitive element to supply a signal from said
capacitive element.
2. (original) The apparatus of claim 1, further comprising a switching device connected to an
output of said capacitive element.
3. (original) The apparatus of claim 1, wherein said rectification block is selected from a group
consisting of a full-wave rectification block and a half-wave rectification block.
4. (original) The apparatus of claim 1, comprising three or more stacked piezoelectric elements.
5. (canceled)
6. (currently amended) The apparatus of claim 1 [[5]], wherein said signal phase delay element
comprises an inductor.
7. (original) The apparatus of claim 2, wherein said switching device comprises a field effect
transistor (FET).
8. (original) The apparatus of claim 2, wherein said switching device comprises multiple field
effect transistors (FETs).
9. (original) The apparatus of claim 2, wherein said switching device comprises a bipolar
transistor.
10. (original) The apparatus of claim 2, wherein said switching device comprises multiple
bipolar transistors.

11. (original) The apparatus of claim 2, wherein said switching device comprises a relay or microelectromechanical systems (MEMS) relay.
12. (original) The apparatus of claim 2, wherein said switching device comprises an available timer circuit.
13. (original) The apparatus of claim 2, wherein said switching device comprises a direct micro-controller input.
14. (original) The apparatus of claim 1, wherein said apparatus comprises a means for detecting changes in position from gravitational effects on a structure rotating at an angle to the surface of a significant gravity source.
15. (original) The apparatus of claim 14, wherein said structure comprises a wheel.
16. (original) The apparatus of claim 14, wherein said angle comprises approximately 90 degrees.
17. (original) The apparatus of claim 14, wherein said gravity source comprises the earth.
18. (original) The apparatus of claim 1, wherein said apparatus comprises means for detecting changes in position from movement of a structure the apparatus is mounted upon.
19. (original) The apparatus of claim 1, wherein said apparatus comprises means for detecting changes in movement of a structure placed upon the apparatus.
20. (original) The apparatus of claim 1, wherein said apparatus comprises means for detecting changes in frequency or amplitude available from a local electrical field.
21. (original) The apparatus of claim 20, wherein said electrical field comprises a field in the approximate range of 50 to 60 Hz.
22. (original) The apparatus of claim 1, wherein said apparatus comprises means for detecting changes in frequency or amplitude available from low power sound energy.
23. (original) The apparatus of claim 1, wherein said apparatus comprises means for detecting changes in frequency or amplitude available from ultrasound energy.
24. (original) The apparatus of claim 1, wherein one or more of said rectification blocks comprises a circuit board.

25. (original) The apparatus of claim 1, wherein one or more of said capacitive elements comprises a capacitor.
26. (original) The apparatus of claim 1, wherein said apparatus comprises means for detecting changes in ambient power available from RF spectrum energy fields.
27. (original) The apparatus of claim 1, wherein said apparatus comprises means for detecting changes in magnetic fields.
28. – 57. (canceled)
58. (new) An apparatus for use as a sensor comprising:
a plurality of piezoelectric elements of different geometric sizes arranged in a stack from largest to smallest, each of said piezoelectric elements having an output,
a rectification block on each said output of said piezoelectric elements,
a capacitive element connected to each of said rectification blocks to accumulate charge from said rectification block, and
a sensor output connected to said capacitive element to supply a signal from said capacitive element.
59. (new) The apparatus of claim 58, further comprising a switching device connected to an output of said capacitive element.
60. (new) The apparatus of claim 58, wherein said rectification block is selected from a group consisting of a full-wave rectification block and a half-wave rectification block.
61. (new) The apparatus of claim 58, comprising three or more stacked piezoelectric elements.
62. (new) The apparatus of claim 58, further comprising a signal phase delay element provided between said rectification block and said capacitive element.
63. (new) The apparatus of claim 62, wherein said signal phase delay element comprises an inductor.
64. (new) The apparatus of claim 59, wherein said switching device comprises a field effect transistor (FET).

- 65. (new) The apparatus of claim 59, wherein said switching device comprises multiple field effect transistors (FETs).
- 66. (new) The apparatus of claim 59, wherein said switching device comprises a bipolar transistor.
- 67. (new) The apparatus of claim 59, wherein said switching device comprises multiple bipolar transistors.
- 68. (new) The apparatus of claim 59, wherein said switching device comprises a relay or microelectromechanical systems (MEMS) relay.
- 69. (new) The apparatus of claim 59, wherein said switching device comprises an available timer circuit.
- 70. (new) The apparatus of claim 59, wherein said switching device comprises a direct micro-controller input.
- 71. (new) The apparatus of claim 58, wherein said apparatus comprises a means for detecting changes in position from gravitational effects on a structure rotating at an angle to the surface of a significant gravity source.
- 72. (new) The apparatus of claim 71, wherein said structure comprises a wheel.
- 73. (original) The apparatus of claim 71, wherein said angle comprises approximately 90 degrees.
- 74. (new) The apparatus of claim 71, wherein said gravity source comprises the earth.
- 75. (new) The apparatus of claim 58, wherein said apparatus comprises means for detecting changes in position from movement of a structure the apparatus is mounted upon.
- 76. (new) The apparatus of claim 58, wherein said apparatus comprises means for detecting changes in movement of a structure placed upon the apparatus.
- 77. (new) The apparatus of claim 58, wherein said apparatus comprises means for detecting changes in frequency or amplitude available from a local electrical field.
- 78. (new) The apparatus of claim 77, wherein said electrical field comprises a field in the approximate range of 50 to 60 Hz.

79. (new) The apparatus of claim 58, wherein said apparatus comprises means for detecting changes in frequency or amplitude available from low power sound energy.
80. (new) The apparatus of claim 58, wherein said apparatus comprises means for detecting changes in frequency or amplitude available from ultrasound energy.
81. (new) The apparatus of claim 58, wherein one or more of said rectification blocks comprises a circuit board.
82. (new) The apparatus of claim 58, wherein one or more of said capacitive elements comprises a capacitor.
83. (new) The apparatus of claim 58, wherein said apparatus comprises means for detecting changes in ambient power available from RF spectrum energy fields.
84. (new) The apparatus of claim 58, wherein said apparatus comprises means for detecting changes in magnetic fields.